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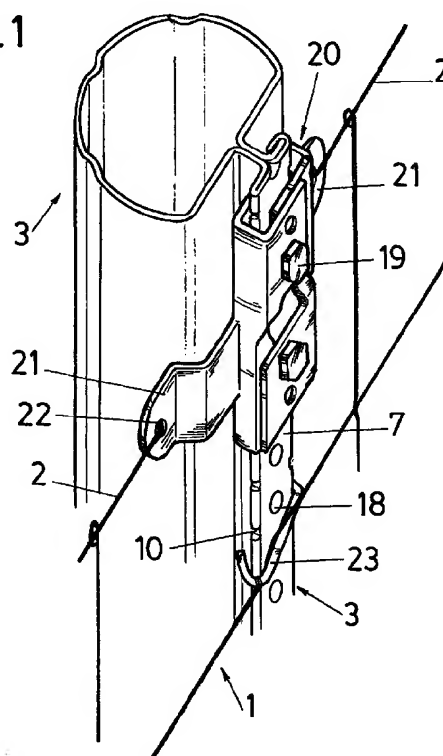
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**(54) Rack tube for metallic enclosures**

(57) Consituted by a closed profile which is provided with a "T" shaped rear area (3), equipped with a web defined by two joined extensions (4) and (5), derivating from an extension (4) and at 90°, a wing (6) with subsequently folds 360° over itself, extending into an intermediate section (7) which projects from the web and folds again 390°, ending in an end section (8), including between said end section (8) and the intermediate section (7), an end wing (9) which derivates 90° from the other extension (5), which is provided on its edge with internal projections (11) against which teeth (12) of the side edge of the wing (9) contact, the same also including a splined area (16) in contact with another splined area (17) defined on the internal face of the end section (8) which generates a balance stress in its contact which prevents the turning of the tube when subjected to tension.

**FIG.1**



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## Description

### OBJECT OF THE INVENTION

[0001] The present invention refers to a rack tube, conceived for use in metallic closures in which the attachment elements of the meshing are coupled together with the corresponding tie-rods or tensioners.

[0002] The object of the invention is to configure the tube by a closed profile which is provided with a "T" shaped rear area where the closure of the tube is established, including teeth and internal splines at the locking edges hindering the tube rotation when it is subjected to stresses by the mesh and tensioner action.

### BACKGROUND OF THE INVENTION

[0003] The low thickness tubes employed in metallic closures are generally configured as from the progressive curving of an appropriately treated metal strip, until the terminal edges of the sheet are perfectly confronted, subsequently applying a welding bead which establishes the union between the edges, determining the closure of the tube formed in this manner.

[0004] The most commonly widespread tube for this application is a circular configuration tube on which a series of flanges or small clutches are welded to which the mesh or tensioners are linked.

[0005] Other possible embodiments contemplate that the tube shall be configured with a prominent rear area, for example, with "T" shape, with a central web and a flat transversal surface constituting the anchorage area of the corresponding small clutches or the like, a contact plane with the mesh being offered by this surface, greater than the one shown by the simple circular tube.

[0006] This major contact surface intends to confer a greater joining stability with the mesh, though it does not however, totally solve the rotation problem produced in the tube when stress is applied to it, preventing its normal assembly and negatively affecting the cementation.

[0007] The solution of this problem by means of the development of a tube for metallic closures, the object of which is the stability of the tube during the tensing of the same, preventing undesired rotation, makes the invention which is herewith described, feasibly.

### DESCRIPTION OF THE INVENTION

[0008] The rack tube for metallic closures proposed by this invention, totally covers the described expectations, solving the rotation problems by means of including internal teeth and splines which compensate for the stresses caused by the tensing elements holding the tube position.

[0009] The tube is mainly constituted by a closed profile provided with a "T" shaped rear area, equipped with a web of two joined extensions, a wing coming from one of them at 90° which subsequently folds back over

itself at 360°, extending into an intermediate section which projects from the web and is again folded at 360°, ending in an end section, including between said end section and the intermediate section, an end wing which comes out at 90° from the other web extension.

[0010] Well then, considering this tube configuration, it is contemplated, that in the side edges defined between the web and the intermediate section, and between the intermediate section and the end wing, equidistant recesses are to be found, which contribute to the stiffening of this area.

[0011] An internal set of teeth are correspondingly internally in contact with these recesses, said teeth being defined on the edge of the end wing.

[0012] It must be likewise pointed out, that the end wing and the end section are provided with corresponding splines on their contact faces which alternate, ensuring their attachment and offering a resistance against the tube rotation when the tensing elements force is applied.

[0013] In consequence, the torque applied on the tube by the meshing and the tensioners is absorbed by a resistant torque caused by the contact between the splined areas of the end web and the end section, preventing the production of any tube rotation.

[0014] The rear face of the intermediate section includes a series of circular depressions, uniformly distributed, on which the anchorage of the clamp attachment elements which include the "T" shaped profile are established, which are provided with side tabs with orifices in which the linking of the closure tensor elements is established.

[0015] It must be emphasised, that at the ends of said intermediate section, the depressions are semicircular and penetrate, with triangular section, covering the web extension branching area, thus sealing the union so as to prevent the introduction of foreign particles.

[0016] The stiffening recesses defined at the side edges are to be found distributed at various heights, and facilitate the inclusion of staples with sloped arrangement which clamp the "T" shaped area with the help of pincers, pressing a wire section of the mesh with the object of contributing to the attachment of the latter.

### DESCRIPTION OF THE DRAWINGS

[0017] In order to complement the description which is being carried out, and with the object of helping to a better understanding of the characteristics of the invention, the present Specification is enclosed with a set of drawings forming integral part of the same, in which, with illustrative and non limitative character, the following has been represented:

Figure 1 shows a perspective view of the rack tube for metallic closures with a mesh and tensioners coupled on its rear surface.

Figure 2 shows a side view of the tube.

Figure 3 shows a perspective view of a detail of the "T" shaped rear section, observing one of the edges with its recesses.

Figure 4 shows a view along line A-A' of the previous figure

Figure 5 shows a perspective view of a spline detail on one side of the end wing.

Figure 6 shows a perspective view of a detail of the end section splining.

### **PREFERRED EMBODIMENT OF THE INVENTION**

[0018] In view of the indicated figures, a preferred embodiment of the rack tube for metallic closures is herewith described, which is the object of this invention, applicable for the support of the mesh (1) and other tension elements (2) which cause a tensing condition on the same.

[0019] The tube is mainly constituted by a closed profile provided with a rear "T" shaped section (3), equipped with a web defined by two joined extensions (4) and (5) a wing (6) coming out from one extension (4) and at 90°, which is subsequently folded back over itself at 360°, extending along an intermediate section (7) which projects from the web and is again folded at 360°, ending with an end section (8), including in this end section (8) and the intermediate section (7), an end wing (9) which comes out at 90° from the other extension (5).

[0020] It has been provided, that between the end section (8) and the intermediate section (7), an edge is defined on which recesses (10) are performed, which define corresponding internal projections (11) against which teeth (12) defined at the side edge of the end wing (9) contact, likewise, end wing (9) includes at one of its sides, a splined section (16) in contact with another splined section (17) defined on the internal side of the end section (8) which generates a balancing stress at contact, which prevents the tube rotation when the same is subjected to stress.

[0021] The tube includes uniformly distributed circular depressions (18) on the intermediate section (7) over which the anchorage of attachment elements (19) of clamps (20) are established, which bracket the "T" shaped profile and are provided with side tabs (21) with orifices (22) on which the link with the tensioning elements (2) is established.

[0022] The tube is likewise provided with staples (23) which clamp the "T" shaped section coupling on the stiffening recesses (10) defined at the side edges, pressing on the wire mesh section (1) for its attachment.

[0023] It is considered unnecessary to make this description more extensive in order that any expert in the Art can understand the scope of the invention and

the advantages derived from the same.

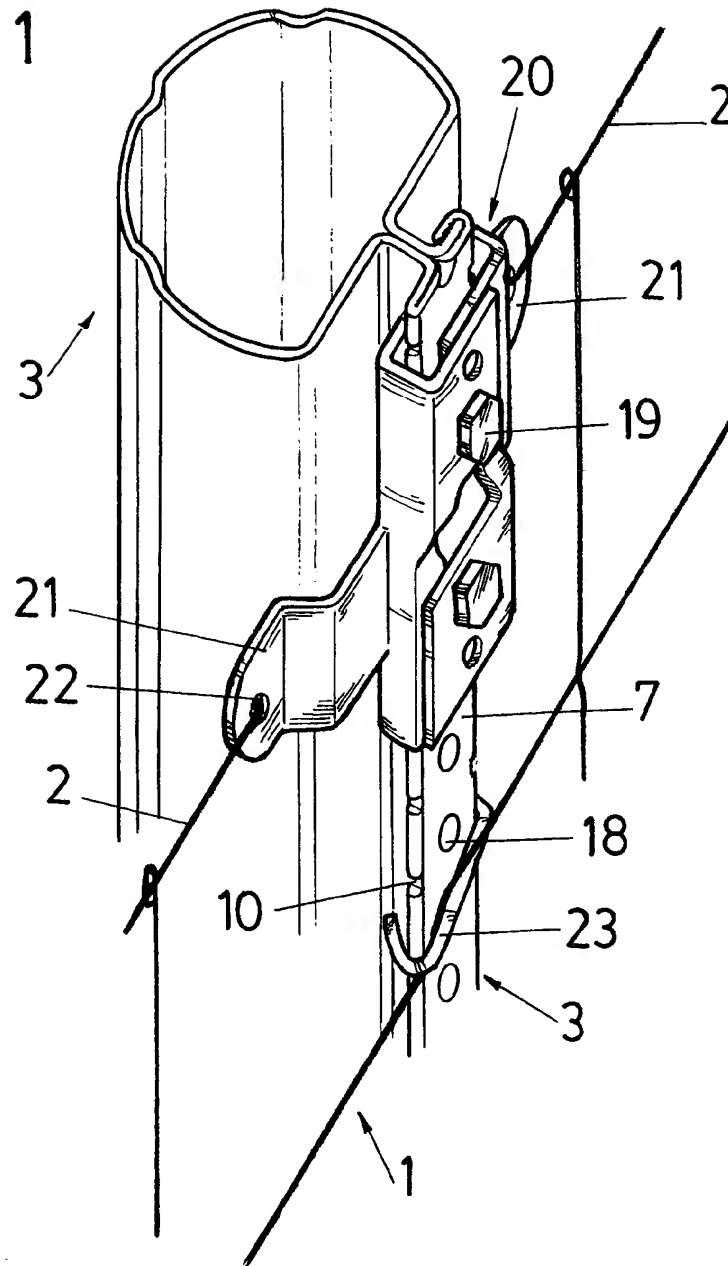
[0024] The materials, shape, size and arrangement of the elements are capable of variation, provided it does not alter the essentially of the invention.

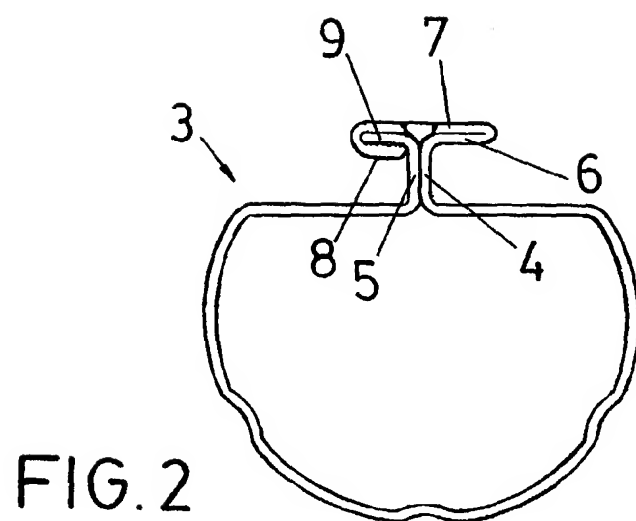
[0025] The terms in which this Specification has been described shall always be taken in the wide and non limitative sense.

### **Claims**

1. Rack tube for metallic closures, applicable for supporting the mesh (1) and other tensioning elements (2) causing a tensing condition on the same, essentially characterized in that it is constituted by a closed profile provided with a "T" shaped rear section (3) and having a web defined by two joined extensions (4) and (5), a wing (6) coming out from one extension (4) and at 90°, which is subsequently folded back over itself at 360°, extending into an intermediate section (7) which projects from the web and is again folded at 360°, ending at an end section (8), including between said end section (8) and the intermediate section (7), an end wing (9) which comes out at 90° from the other extension (5).
2. Rack tube for metallic closures, according to the previous claim, characterised in that between the end section (8) and the intermediate section (7) an edge is defined, on which recesses (10) are performed, defining corresponding internal projections (11), against which teeth (12) defined at the side edge of the end wing (9) contact, likewise, the end wing (9) includes at one of its sides, a splined section (16) in contact with another splined section (17) defined on the internal side of the end section (8), which generates a balancing stress on contact, preventing the tube rotation when it is subjected to stress.
3. Rack tube for metallic closures, according to the previous claims, characterised in that it includes at the intermediate section (7), uniformly distributed circular depressions (18) on which the anchorage of attachment elements (19) of clamps (20) are established, which bracket a "T" shaped profile, and are provided with side tabs (21) with orifices (22) on which the link with the tensioning elements (2) is established.
4. Rack tube for metallic closures, according to claims 1 and 2, characterised in that it is provided with staples (23) which bracket the "T" shaped section, coupling on the stiffening recesses (10) defined at the side edges, pressing on a wire section of mesh (1) for its attachment.

FIG. 1





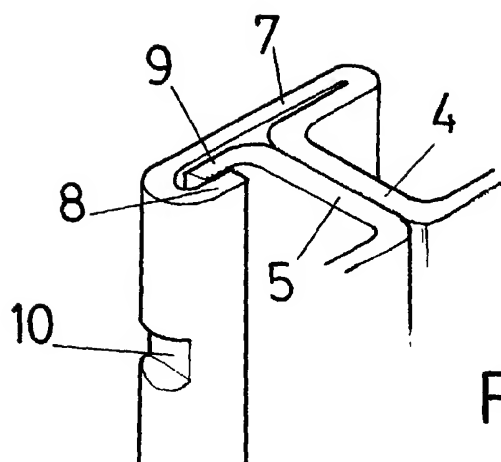


FIG. 3

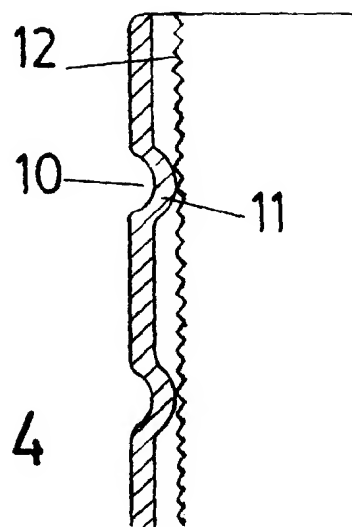


FIG. 4

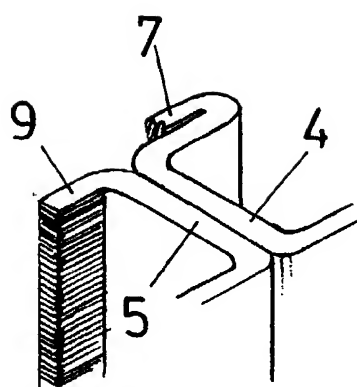


FIG. 5

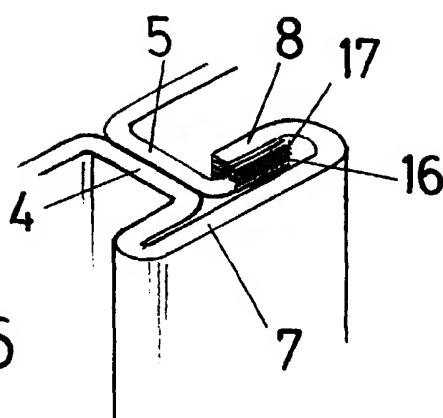


FIG. 6